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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,973	07/28/2003	Byoung-Ho Choi	1293.1912	4090

49455 7590 06/15/2006

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EXAMINER	
GUPTA, PARUL H	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,973	CHOI ET AL.	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-32 are pending for examination as interpreted by the examiner. The IDS filed on 7/28/03, 12/14/05, and 1/26/06 were considered.

Specification

2. The disclosure is objected to because of the following informalities: the word "controlling" is misspelled in the title of the disclosure. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-8, 10-13, 15-17, 21, 23-27, 29, and 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuda et al., US Patent 6,256,273.

Regarding claim 1, Matsuda et al. teaches a method of preventing a disc from being scratched by an objective lens, the method comprising: performing a focus pull-in operation (referred to as "focus jumping" in column 3, lines 36-40); and if a level of a pull-in signal remains lower than a predetermined critical level for at least a predetermined critical period of time, controlling the objective lens so as to move away from the disc (column 3, lines 26-30).

Regarding claim 3, Matsuda et al. teaches the method of claim 1, wherein the controlling the objective lens comprises applying a direct current signal to the actuator for actuating a pickup having the objective lens (column 5, line67-column 6, line 5).

Regarding claim 5, Matsuda et al. teaches the method of claim 1, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light-receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 6, Matsuda et al. teaches a method of preventing a disc from being scratched by an objective lens, the method comprising: initializing a pull-in signal (column 5, lines 53-55); performing a focus pull-in ("focus jumping process" of column 3, line 17); checking a level of the pull-in signal (column 3, lines 17-19); if the level of the pull-in signal is lower than a predetermined critical level, checking a time for which the level of the pull-in signal remains lower than the predetermined critical level (column 3, lines 22-26); and if the time is at least a predetermined critical period of time, controlling a pickup having the objective lens to move away from the disc (column 3, lines 12-15).

Regarding claim 7, Matsuda et al. teaches the method of claim 6, further comprising: if the time is not at least the predetermined critical period of time, outputting an average value of a drive signal (taking no action to perform focus jumping operation) that was previously applied to the actuator for actuating a pickup having the objective lens (column 12, lines 1-12 and 27-58 explains how the process works if the time is reached or not).

Regarding claim 8, Matsuda et al. teaches the method of claim 6, wherein the initializing of the pull-in signal comprises initializing the pull-in signal to a level lower

than a predetermined direct current level so as to easily detect the predetermined direct current level during the focus pull-in operation (column 5, lines 51-57 explains how the level given is initialized before the focus jump is operated and is thus at a lower value).

Regarding claim 10, Matsuda et al. teaches the method of claim 6, wherein, if the time is at least predetermined critical period of time, applying a direct current signal to the actuator (column 5, line67-column 6, line 5).

Regarding claim 11, Matsuda et al. teaches the method of claim 10, wherein the direct current signal (FBP) is applied to stop the actuator (column 6, lines 2-5).

Regarding claim 12, Matsuda et al. teaches the method of claim 6, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 13, Matsuda et al. teaches in figure 2 an apparatus preventing a disc from being scratched by an objective lens, the apparatus comprising: a pickup (3) having an objective lens; an actuator actuating the pickup (30); a signal detector detecting a pull-in signal from the pickup (5); and a controlling unit (8) that if a level of the pull-in signal is maintained lower than a predetermined critical level for at least a predetermined critical period of time, controls the actuator so that the objective lens moves away from the disc.

Regarding claim 15, Matsuda et al. teaches the apparatus of claim 13, wherein the controlling unit applies a direct current signal to the actuator (column 5, line67-column 6, line 5).

Regarding claim 16, Matsuda et al. teaches the apparatus of claim 13, wherein the controlling unit applies a direct current signal (FBP) to the actuator so as to stop the actuator (column 6, lines 2-5).

Regarding claim 17, Matsuda et al. teaches the apparatus of claim 13, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 21, Matsuda et al. teaches a computer readable medium encoded with processing instructions implementing a method of preventing a disc from being scratched by an objective lens (inherent to the method of claim 1 and shown in the "microcomputer" of element 8 of figure 2), the method comprising: performing a focus pull-in operation (referred to as "focus jumping" in column 3, lines 36-40); and controlling the objective lens so as to move away from the disc if a level of a pull-in signal remains lower than a predetermined critical level for a predetermined critical period of time or more (column 3, lines 26-30).

Regarding claim 23, Matsuda et al. teaches the computer readable medium of claim 21, wherein a direct current signal (FKP) is applied to the actuator for actuating a pickup having the objective lens (column 5, line 67-column 6, line 2).

Regarding claim 24, Matsuda et al. teaches the computer readable medium of claim 21, wherein the pull-in signal (purpose served by the "focusing error signal") is one of a sum signal of signals focused onto a plurality of division light receiving units of a photodiode (column 4, line 58-column 5, line 8) and a signal generated by filtering a sum signal through a low-pass filter so as to remove a high frequency component (column 11, lines 5-8 explain how a band pass filter is used to serve the same purpose).

Regarding claim 25, Matsuda et al. teaches a computer readable medium encoded with processing instructions implementing a method of preventing a disc from being scratched by an objective lens (inherent to the method of claim 6 and shown in the "microcomputer" of element 8 of figure 2), the method comprising: initializing a pull-in signal (column 5, lines 53-55); performing a focus pull-in ("focus jumping process" of column 3, line 17); checking a level of the pull-in signal (column 3, lines 17-19); checking a time for which the level of the pull-in signal remains lower than the predetermined critical level if the level of the pull-in signal is lower than a predetermined critical level (column 3, lines 22-26); and controlling a pickup having the objective lens so as to move away from the disc if the time is at least a predetermined critical period of time (column 3, lines 12-15).

Regarding claim 26, Matsuda et al. teaches in figure 2 an apparatus preventing a disc from being scratched by an objective lens, the apparatus comprising: a pickup (3);

an actuator actuating the pickup (30); a signal detector detecting a pull-in signal from the pickup (5); and a controller (8) checking levels of a detected signal and outputting a control signal; and a drive moving the pickup based on the control signal (14).

Regarding claim 27, Matsuda et al. teaches the apparatus of claim 26, the pickup comprising: a laser diode radiating a beam of light (column 2, lines 35-36 and column 4, line 34); a collimating lens focusing the beam of light into a parallel beam of light (inherent to system); an objective lens focusing the parallel beam onto the disc (column 5, lines 18-19); a beam splitter splitting the beam of light into an incident beam of light and a reflected beam of light and changing the path of the reflected beam of light (column 4, lines 25-32); and a photodiode receiving the reflected beam of light (column 5, lines 9-13).

Regarding claim 29, Matsuda et al. teaches a method of controlling a movement of a pickup, comprising: radiating a laser beam from the pickup (column 2, lines 35-36 and column 4, line 34); focusing the laser beam onto a surface of a reflective disc (column 2, lines 39-44); receiving a reflected beam of light from the disc with a plurality of light- receiving units (column 4, lines 58-67); generating a focus pull-in signal (purpose served by "drive signal") and a focus error signal based on the received light (column 2, lines 39-44 and column 3, lines 4-8); checking a level of the generated focus pull-in signal and focus error signals (column 3, lines 16-30); and generating a current based on the level of the signals (purpose served by "drive signal") so as to move the pickup (column 5, lines 18-24).

Regarding claim 31, Matsuda et al. teaches a method of controlling a movement of a pickup, comprising: setting an initial value of a pickup pull-in signal (column 5, lines 53-55); focusing a laser beam from the pickup on a disc based on an initial value of the pulling signal (column 2, lines 55-59); checking a level of the pull-in signal (column 3, lines 16-30); and outputting a drive signal for the pickup based on the level of the pull-in signal (column 2, lines 39-44).

Regarding claim 32, Matsuda et al. teaches the method of controlling a movement of a pickup as claimed in claim 31, wherein checking a level of the pull-in signal includes checking whether the pull-in signal is lower than a predetermined level for at least a predetermined critical period of time (column 3, lines 16-30).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 9, 14, 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. in view of Kubota, US Patent Publication 2002/0101800.

Matsuda et al. teaches the method and apparatus of preventing a disc from being scratched by an objective lens as given in claims 1, 6, 13, and 21. In addition, Matsuda et al. teaches a predetermined critical period of time and level in which to perform the given operations. However, Matsuda et al. fails to explicitly teach the further limitations

given in claims 2, 9, 14, 18-20, and 22 of the reasons of the predetermined critical period of time and level.

Regarding claim 2, Kubota teaches the where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when an actuator actuating a pickup moves at an operational maximum speed (paragraph 0015).

Regarding claim 9, Kubota teaches where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when the actuator moves at an operational maximum speed (paragraph 0015).

Regarding claim 14, Kubota teaches where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when the actuator moves at an operational maximum speed (paragraph 0015).

Regarding claim 18, Kubota teaches where the predetermined critical level is set to a value measured at a level for which an objective lens in a pickup should not contact a disc when the pickup moves toward the disc during focus control due to a disturbance (paragraph 0015).

Regarding claim 19, Kubota teaches where the predetermined critical level is set to a value measured at a level for which an objective lens in a pickup should not contact a disc when the pickup moves toward the disc during focus control due to a disturbance (paragraph 0015).

Regarding claim 20, Kubota teaches where the predetermined critical level is set to a value measured at a level for which the objective lens in the pickup should not contact the disc when the pickup moves toward the disc during focus control due to a disturbance (paragraph 0015).

Regarding claim 22, Kubota teaches where the predetermined critical period of time is set to a time for which the objective lens remains a minimum distance from the disc without damaging the disc when an actuator actuating the pickup moves at an operational maximum speed (paragraph 0015).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given predetermined critical period of time and level as taught by Kubota into the system of Matsuda et al. This would serve the purpose of ensuring that the focusing servo pull-in apparatus by which a focusing servo can be pulled in a recording surface is operated without accompanying a collision of an objective lens with a storage medium (paragraph 0015).

5. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. in view of Maeda et al., US Patent 6,977,782.

Regarding claim 28, Matsuda et al. teaches the apparatus with the limitations of claim 27. Matsuda et al. does not but Maeda et al. teaches the further limitations of claim 28 including the laser diode having a NA of at least 0.7 (column 6, lines 60-64), and a wavelength of 500 nm or less (column 7, lines 1-3). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given laser diode as taught by Maeda et al. into the system of Matsuda et al. This would

serve the purpose of easily forming the objective lens unit that can accurately condense on the signal recording surface despite perturbations from a tilt relative to the optical axis (column 1, lines 52-65 of Maeda et al.).

Regarding claim 30, see column 3, lines 16-30 of Matsuda et al., which teaches the use of checking a level includes checking when the focus pull-in signal drops to an initial level for a predetermined period of time as recited in this claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
6/11/06

THANG V. TRAN
PRIMARY EXAMINER